

CLAIMS

1. Retractable roof for a vehicle, comprising at least one roof front element (2) and one roof rear element (5), these at least two elements (2, 4, 5) being free to move between a covering position in which they cover the vehicle passenger compartment and a storage position inside the boot of the vehicle.  
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2. Retractable roof according to claim 1, characterised in that the roof also comprises two pivoting arms (14, 10 15).  
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3. Retractable roof according to claim 2, characterised in that that arms (14, 15) are installed free to pivot on the roof rear element (5) between the covering position 15 in which they extend between the front end of the rear element (5) and the back of the windscreens (16) on each side of and along the roof front element (2), and the storage position in which they overlap transversally with respect to the plane of symmetry of the vehicle.  
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4. Retractable roof according to either claim 2 or 3, characterised in that it also comprises at least one roof intermediate element (3, 4), the arms (14, 15) extending in the covering position on each side and along the roof 25 front (2) and intermediate (3, 4) elements.  
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5. Retractable roof according to one of claims 2 to 4, characterised in that the arms (14, 15) pivot about non-parallel rotation axes (A, B).  
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6. Retractable roof according to one of claims 2 to 5, characterised in that the roof front (2) and intermediate (3, 4) elements comprise first means of locking the said elements to the arms.

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7. Retractable roof according to one of claims 2 to 6, characterised in that each arm (14, 15) comprises second means (17, 18) of locking the said arm on the windscreen (16).

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8. Retractable roof according to one of the above claims, characterised in that displacement of the rear element (5) is controlled firstly by a slide (7) extending inside the boot in which a pin (6) is engaged fixed to the rear 15 part of the rear element (5), and secondly by a pivoting lever arm (9) articulated at a fixed point (10) of the vehicle bodywork and articulated to the said rear element (5).

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9. Retractable roof according to one of the above claims, characterised in that the front element (2) is connected to the intermediate element (3, 4) by at least two levers (12a, 12b, 13a, 13b) articulated to the said front element (2) and to the said intermediate element (3, 4) 25 and in that the intermediate element (3, 4) is connected to the rear element (5) by at least two levers (11a, 11b) articulated to the said intermediate element (3, 4) and to the said rear element (5).

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10. Retractable roof according to one of claims 2 to 8, characterised in that two series of lateral slides superposed for the roof front (2) and intermediate (3, 4)

elements extend along the arms (14, 15) and along the two inner lateral parts of the rear element (5) in the covering position.

5 11. Retractable roof according to any one of the above claims, characterised in that:

- either the roof front or the rear element comprises a group of front levers and a group of rear levers installed articulated with respect to this roof  
10 element, to tip between:

\* a low position in which the element concerned is approximately flush with a surrounding part of the vehicle structure,

\* and a high position in which the said element  
15 concerned is offset in height from its flush position, and

- the groups of levers engage the guides extending essentially approximately parallel to the said longitudinal direction, these guides being adapted:

20 \* during the controlled backwards displacement of the groups of levers, to guide their changeover from the flush position of the corresponding element to its offset position,

25 \* and, during the controlled forwards displacement of these same groups of levers, to guide their changeover from the offset position of the corresponding element to its flush position.

30 12. Retractable roof according to claim 11, characterised in that the lever guides fitted on the roof element(s) concerned advantageously comprise slides in which these groups of lever(s) slide, the slides locally including

deviations extending obliquely from the horizontal and from the said longitudinal direction, over a sufficient length so that each can individually hold part of the said groups of levers, such that once engaged in these 5 deviations, the groups of levers concerned pivot from one of their high or low positions to the other low or high position.

13. Retractable roof according to either claim 11 or 12, 10 characterised in that each guide or slide in which the said roof element concerned slides, has at least one front inclination facing downwards over its length along the longitudinal direction of the vehicle, and a second back inclination also facing downwards, these front and 15 back inclinations being separated longitudinally by a distance corresponding to the longitudinal spacing between the front and back levers of the roof element concerned, such that the levers can be engaged either in the low position of this roof element, or disengaged when 20 this element is sliding backwards, access by one of the back levers to the second corresponding rear inclination depending on the position of a rocker located in the slide and which:

\* in a first position, prevents access of the 25 second rear inclination and therefore imposes sliding of the roof element in the high position,

\* and in a second inclined position, through the slide, enables the rear lever of the roof element to penetrate into or to come out of the second rear 30 inclination.

14. Retractable roof according to claim 13, characterised in that:

5 - a front portion of each rocker preferably extends and rocks under the slide, in front of the second rear inclination, this front portion then having a front edge cranked upwards, that during tipping, passes through an opening formed in the slide to cooperate with the front lever of the roof element concerned;

10 - and a rear portion of each rocker has a lower surface advantageously defining part of the contour of the said second rear inclination, in the inclined position of this tipping lever.

15. Retractable roof according to one of claims 2 to 14, characterised in that it comprises motor drive means (34, 35) for the first means of locking the pivoting arms (14, 15) on the upright of the vehicle windscreen and second means of locking at least the roof front element (2) on the pivoting arms (14, 15), the first and second locking 20 means and pivoting of the arms (14, 15) being controlled by the same motor drive means (34) such as an electric motor.

16. Retractable roof according to claim 15, characterised in that the first and second locking means are controlled by drive rods (35a, 35b) extending inside the arms (14, 15) driven in rotation by the motor drive means (34).

30 17. Retractable roof according to one of the above claims, characterised in that displacement of the rear element (5) is controlled firstly by a slide (7) extending inside the boot in which a pin (6) is engaged

fixed to the rear part of the rear element (5), and secondly by a pivoting lever arm (9) articulated to a fixed point (10) on the vehicle bodywork and articulated to the said rear element (5).

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18. Retractable roof according to one of the above claims, characterised in that this roof comprises at least one roof intermediate element (3, 4), the front element (2) is connected to the intermediate element (3, 4) by at least two levers (12a, 12b, 13a, 13b) articulated to the said front element (2) and to the said intermediate element (3, 4) and in that the intermediate element (3, 4) is connected to the rear element (5) by at least two levers (11a, 11b) articulated to the said intermediate element (3, 4) and to the rear element (5).

19. Retractable roof according to one of claims 2 to 22, characterised in that this roof comprises at least one roof intermediate element (3, 4), two series of lateral slides superposed for roof front (2) and intermediate (3, 4) elements extending along the arms (14, 15) and along the two inner lateral parts of the rear element (5) in the covering position.

25 20. Automobile vehicle, characterised in that it is fitted with a retractable roof according to one of the above claims.